

II. Remarks

A. Status of the Claims

Claims 1-13 and 15-25 will be pending after entry of this amendment. Claims 1, 3, 16 and 17 have been amended without prejudice. Claim 14 has been cancelled without prejudice.

Claims 18-21 and 23 were previously withdrawn. Support for the amendments to claim 1 can be found throughout the application as originally filed, specifically, e.g., in original claim 14, now cancelled. Claim 3 has been amended to correct a typographical error. Support for the amendments to claims 16 and 17 can be found, e.g., in paragraphs [0036] and [0037] of the Specification. Applicants respectfully submit that no new matter has been added by virtue of this amendment.

B. Claim Rejections Under 35 U.S.C. § 112, second paragraph

In the Office Action, claim 3 was rejected as being indefinite, specifically for the recitation of the phrase “upon and the application”.

In response, Applicants have amended claim 3 to correct the typographical error so that the claim now recites “upon the application”.

Accordingly, Applicants respectfully request that the rejection under 35 U.S.C. § 112, second paragraph be removed.

C. Claim Rejections Under 35 U.S.C. § 102

1. Fredriksson et al.

In the Office Action, claims 1, 2, 5, 6, 8, 9, 15 and 21 were rejected under 35 U.S.C. § 102(b) as being anticipated by International Patent Publication No. WO 01/17611 to Fredriksson et al.

Applicants note that the limitations of claim 14 have been incorporated into independent claim 1. As claim 14 was not included in this rejection, Applicants respectfully submit that this rejection is now moot.

Accordingly, Applicants respectfully request that the rejection under 35 U.S.C. § 102(b) be removed.

2. Halbreich et al.

In the Office Action, claims 1-8, 12 and 15 were rejected under 35 U.S.C. § 102(b) as being anticipated by *J. Magnetism and Magnetic Materials*, June 5, 2002, 248:276-285 to Halbreich et al.

As noted above, the limitations of claim 14 have been incorporated into independent claim 1. As claim 14 was not included in this rejection, Applicants respectfully submit that this rejection is now moot.

Accordingly, Applicants respectfully request that the rejection under 35 U.S.C. § 102(b) be removed.

3. Prasad et al.

In the Office Action, claims 1, 2, 5-9, 12, 13, 15 and 24 were rejected under 35 U.S.C. §S 102(a) and 102(e) as being anticipated by U.S. Patent No. 6,514,481 to Prasad et al.

As noted above, the limitations of claim 14 have been incorporated into independent claim 1. As claim 14 was not included in this rejection, Applicants respectfully submit that this rejection is now moot.

Accordingly, Applicants respectfully request that the rejection under 35 U.S.C. § 102(b) be removed.

D. Claim rejection under 35 U.S.C. § 103

I. Fredriksson et al., Chung et al., Jordan et al., Shinkai et al., Alexiou 1 and Alexiou 2

In the Office Action, claims 3, 4, 7, 10, 11, 16, 17, 22, 24 and 25 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Fredriksson et al. in view of *J. Controlled Release* 2000, 65: 93-103 to Chung et al., in view of *J. Magnetism and Magnetic Materials*, 2001, 225:118-126 to Jordan et al., in view of *Jpn. J. Cancer Res.*, 92:1138-1146 to Shinkai et al. in view of *J. Drug Targeting*, April 2003, 11:139-149 by Alexiou et al. (hereinafter "Alexiou 1") and in view of *Cancer Research*, Dec. 2000, 60:6641-6648 to Alexiou et al. (hereinafter "Alexiou 2").

As noted above, the limitations of claim 14 have been incorporated into independent claim 1. As claim 14 was not included in this rejection, Applicants respectfully submit that

this rejection is now moot.

Accordingly, Applicants respectfully request that the rejection under 35 U.S.C. § 103(a) be removed.

2. Fredriksson et al. in view of U.S. Patent No. 6,231,496 to Wilk et al.

In the Office Action, claims 3, 7, 13 and 14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Fredriksson et al. in view of U.S. Patent No. 6,231,496 to Wilk et al.

This rejection is respectfully traversed. Applicants submit that the combined teachings of Fredriksson et al. and Wilk et al. fail to obviate the method of inducing structural damage in a target cell as presently claimed. Pursuant to MPEP § 2142, to establish a prima facie case of obviousness, and thus sustain the rejection of a claim under 35 U.S.C. § 103(a), there must be a clear articulation of the reasons why Applicants' claimed invention would have been obvious. *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398 (2007). The Supreme Court in *KSR* has further noted that an analysis supporting a rejection under 35 U.S.C. § 103(a) should be made explicit. Therefore, it is clear that an obviousness rejection "cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F.3d 977 (Fed. Cir. 2006). Moreover, "[t]o support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." MPEP § 706.02(j).

Applicants submit that, as admitted by the Examiner, Fredriksson et al. and Wilk et al. fail to describe applying an AC magnetic field at a frequency in the range 1 Hz to 500 Hz. *See Office Action* at page 10. However, to support his position, the Examiner states that since Fredriksson et al. “teaches using an alternating magnetic field up to 30 MHz, the optimum suitable frequency ranges to rotate the nanoparticles may be obtained by routine experimentation, absent a showing of criticality or unexpected results.” *Id.*

Applicants respectfully disagree with the Examiner’s position and submit that the mere mention in Fredriksson et al. of an alternating magnetic field up to 30 MHz fails to obviate the low magnetic field at a specific frequency range of 1 Hz to 500 Hz, as presently claimed. By way of the present invention, the inventors have exploited the characteristics of the effect of varying frequencies of the magnetic field as applied to the particles, particularly the characteristic that magnetic hyperthermia results with a high frequency (*see, e.g., Specification* at paragraphs [[0024] and [0037]]), while magneto-mechanical destruction results with a much lower frequency (*see, e.g., Specification* at paragraph [0036]). Thus, the inventors have discovered that it is possible to have magneto-mechanical destruction of the cells without inducing magnetic hyperthermia by applying a low frequency magnetic field. The beneficial feature of applying a low frequency is neither taught nor suggested by the cited art.

Further, Applicants point out that a 30 MHz frequency mentioned in Fredriksson et al. is 60,000 times greater than the highest frequency of the claimed range, *i.e.*, 500 Hz, and 30,000,000 times greater than the lowest frequency of the claimed range, *i.e.*, 1 Hz.

Applicants submit that it would take a vast amount of undue experimentation to derive the claimed frequency range from the frequency mentioned in Fredriksson et al., particularly one that is 60,000-30,000,000 times greater than claimed range.

Accordingly, Applicants submit that the combination of Fredriksson et al. and Wilk et al. fail to obviate the present claims and respectfully request that the rejection under 35 U.S.C. § 103(a) be removed.

III. Conclusion

In view of the amendments made and arguments presented, it is believed that all claims are in condition for allowance. If the Examiner believes that issues may be resolved by a telephone interview, the Examiner is invited to telephone the undersigned at (973)597-6162. The undersigned also may be contacted via email at epietrowski@lowenstein.com. All correspondence should be directed to our address listed below.

AUTHORIZATION

The Commissioner is hereby authorized to charge any fees that may be required, or credit any overpayment, to Deposit Account No. 50-1358.

Respectfully submitted,

Date: May 26, 2010

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